

ELECTRICALLY CONDUCTIVE ELASTIC COMPOSITE YARN,
METHODS FOR MAKING THE SAME, AND
ARTICLES INCORPORATING THE SAME

5

ABSTRACT OF THE INVENTION

An electrically conductive elastic composite yarn comprises an elastic member that is surrounded by at least one conductive covering filament(s). The elastic member has a predetermined relaxed unit length L and a predetermined drafted length of $(N \times L)$, where N is a number preferably in the range from about 1.0 to about 8.0. The conductive covering filament has a length that is greater than the drafted length of the elastic member such that substantially all of an elongating stress imposed on the composite yarn is carried by the elastic member.

The elastic composite yarn may further include an optional stress-bearing member surrounding the elastic member and the conductive covering filament. The length of the stress-bearing member is less than the length of the conductive covering filament and greater than, or equal to, the drafted length $(N \times L)$ of the elastic member, such that a portion of the elongating stress imposed on the composite yarn is carried by the stress-bearing member.

20